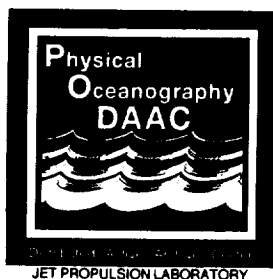


JPL Physical Oceanography Distributed Active Archive Center (PO.DAAC) Data Availability

Version 1-93

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National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

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ABSTRACT

The Physical Oceanography Distributed Active Archive Center (PO.DAAC) archive at the Jet Propulsion Laboratory (JPL) contains satellite data sets and ancillary *in-situ* data for the ocean sciences and global-change research to facilitate multidisciplinary use of satellite ocean data. Geophysical parameters available from the archive include sea-surface height, surface-wind vector, surface-wind speed, surface-wind stress vector, sea-surface temperature, atmospheric liquid water, integrated water vapor, phytoplankton pigment concentration, heat flux, and *in-situ* data. PO.DAAC is an element of the Earth Observing System Data and Information System (EOSDIS) and is the United States distribution site for TOPEX/POSEIDON data and metadata.

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I. INTRODUCTION

The Role of the Physical Oceanography Distributed Active Archive Center

This publication contains descriptions of the data in the archive of the Physical Oceanography Distributed Active Archive Center (PO.DAAC) at the Jet Propulsion Laboratory (JPL), California Institute of Technology, Pasadena, California.

As one element of the Earth Observing System Data and Information System (EOSDIS), the mission of PO.DAAC is to archive and distribute data relevant to the physical state of the oceans (see Table 1). The goals of PO.DAAC are to serve the needs of the oceanographic and geophysical sciences research communities and to provide data in support of interdisciplinary research. The primary means of achieving these goals are through: acquiring, compiling, processing, and distributing data obtained from spaceborne and conventional instruments; producing and distributing higher level data products; and providing an increasing range of data services to the broad research community.

This document revision contains data sets in addition to those reported previously. As new data are added to the PO.DAAC holdings, the PO.DAAC.DAAC bulletin board on the OMNET Electronic Mail Service will be updated. The PO.DAAC data holdings are also described in the National Aeronautics and Space Administration (NASA) Master Directory, an on-line directory of data maintained by NASA's Goddard Space Flight Center.

JPL Physical Oceanography DAAC (PO.DAAC) Data Distribution Policy

To facilitate the full and open access to quality data for global-change research, the data archived by PO.DAAC will be freely available upon request to the scientific community for scientific and educational purposes. Data sets available through PO.DAAC will not carry periods of exclusive use or access. Data sets will not be available through PO.DAAC for commercial purposes. The use of the data sets provided by PO.DAAC implies an obligation that proper credit be given to the data source, including the author of the data set.

The cost of reproduction and distribution for all data sets included in the PO.DAAC inventory will be borne by PO.DAAC as a service to the scientific community.

Should the data obtained from PO.DAAC be used in a publication, PO.DAAC requests the following acknowledgment: "These data were obtained from the NASA Physical Oceanography Distributed Active Archive Center at the Jet Propulsion Laboratory, California Institute of Technology."

Please send PO.DAAC two reprints of all published papers or reports that utilize these data.

To permit PO.DAAC to provide the best service to the scientific community, we request notification if you transmit these data to other researchers.

PO.DAAC wishes to foster data sharing whenever possible. If you have data sets or software you would like to share with other members of the research community, PO.DAAC will be happy to manage and distribute these products for you.

Data Media and Formats

PO.DAAC distributes data on a variety of media and in a variety of formats, as listed in Table 2. PO.DAAC supports data distribution by electronic file transfer (FTP) where practical, and data available in the PO.DAAC public account can be accessed electronically via INTERNET. The INTERNET address is: SHRIMP.JPL.NASA.GOV. When the computer is accessed, it will prompt you

for your name: respond with "anonymous". This allows you access to the data. The program will also prompt you for your real name for record-keeping purposes. PO.DAAC will be increasing the number of data sets that are available via FTP.

Selected data sets are distributed on CD-ROM media as indicated in Table 2. PO.DAAC supports data distribution on magnetic media, including 6250-bpi 9-track tape, 8-mm tape, and 3480 cartridge tape. In general, data will be supplied in VAX VMS backup, ANSI, or UNIX (unlabeled tape) format as requested. UNIX TAR tapes are available as time permits.

EOSDIS has adopted the hierarchical data format (HDF) as the data format standard. Where practical, PO.DAAC will endeavor to distribute the data sets in HDF. For data provided in HDF, the read and display software and documentation are available from the National Consortium for Supercomputer Applications.

Read and display software is available for most data sets and will be provided with documentation of the data. Documentation relevant to a data set not readily available in the open literature will be sent with the data.

Data Requests and Information

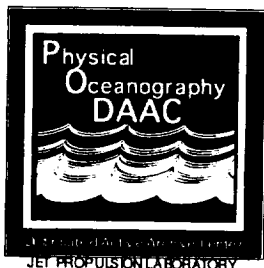
Requests for data may be made by completing and mailing the User Request Form on page 3. It is requested that users supply precise information as to computer type and requested data format to facilitate timely and appropriate data transfer from PO.DAAC. Some of the referenced documentation may be obtained from the open literature. Other reports not commonly available may be obtained from PO.DAAC.

For information on the status of orders and general information regarding PO.DAAC data holdings and services, contact:

Ruby A. Lassanyi, User Services Coordinator
Physical Oceanography Archive Center (PO.DAAC)
Jet Propulsion Laboratory
M/S 300-320
4800 Oak Grove Drive
Pasadena, CA 91109, U.S.A.
Phone: (818) 354-0906
FAX: (818) 393-6720 (Attention: Ruby A. Lassanyi)
Email: PO.DAAC.JPL on OMNET
SHRIMP::RAL on NSI/DECnet
RAL@SHRIMP.JPL.NASA.GOV on INTERNET
TELEX: 675429 (Attention: Ruby A. Lassanyi)

For technical information regarding data sets, data usage, and data formats, contact:

Susan A. Digby, Head, User Services
Physical Oceanography Archive Center (PO.DAAC)
Jet Propulsion Laboratory
M/S 300-323
4800 Oak Grove Drive
Pasadena, CA 91109, U.S.A.
Phone: (818) 354-0151
FAX: (818) 393-6720 (Attention: Susan A. Digby)
Email: SHRIMP::SSD on NSI/DECnet
SSD@SHRIMP.JPL.NASA.GOV on INTERNET



**Physical Oceanography
Distributed Active Archive Center**

USER REQUEST FORM

Name _____ Date _____
Institution _____
Department _____
Building _____
Street _____
City _____ State /Country _____ Zip Code _____
Phone () _____ FAX () _____
Telemail/Email _____

DATA REQUEST

Title of data set (from this publication) _____

Parameter of interest (i.e., sea-surface temperature) _____

Region _____
Time period _____
Computer type _____
Preferred media ☐ FTP ☐ CD-ROM ☐ 9-Track Tape ☐ 8-mm Tape ☐ 3480 Tape
Preferred data format (for tapes only) ☐ VAX VMS Backup ☐ UNIX-Compatible Unlabeled ☐ ANSI
Other information _____

Please be specific, your order can only be filled promptly if we have all the information.
(See reverse for contact information)

For information on the status of data orders and general information regarding PO.DAAC data holdings and data services, please contact Ruby A. Lassanyi at the return address for this form (below) or via electronic mail at (1) PO.DAAC.JPL/OMNETJMAIL, (2) NSI/DECnet SHRIMP::RAL, or (3) Internet RAL@ SHRIMP.JPL.NASA.GOV, or via FAX at (818) 393-6720.

The return address for this form is:

JPL Physical Oceanography DAAC
M/S 300-320
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109, U.S.A.
Attn: Ruby A. Lassanyi

For technical information regarding data sets, data usage, and data formats, contact Susan A. Digby at the JPL Physical Oceanography DAAC address listed above or on NSI/DECnet as SHRIMP::SSD, on Internet as SSD@ shrimp.jpl.nasa.gov, or on Omnet at po.daac.jpl.

JPL Physical Oceanography DAAC (PO.DAAC) Data Distribution Policy

To facilitate the full and open access to quality data for global-change research, the data archived by PO.DAAC will be freely available upon request to the scientific community for scientific and educational purposes. Data sets available through PO.DAAC will not carry periods of exclusive use or access. Data sets will not be available through PO.DAAC for commercial purposes. The use of the data sets provided by PO.DAAC implies an obligation that proper credit be given to the data source, including the author of the data set.

The cost of reproduction and distribution for all data sets included in PO.DAAC inventory will be borne by PO.DAAC as a service to the scientific community.

Should the data obtained from PO.DAAC be used in a publication, PO.DAAC requests the following acknowledgment: "These data were obtained from the NASA Physical Oceanography Distributed Active Archive Center at the Jet Propulsion Laboratory, California Institute of Technology."

Please send PO.DAAC two reprints of all published papers or reports that utilize these data.

To permit PO.DAAC to provide the best service to the scientific community, we request notification if you transmit these data to other researchers.

PO.DAAC wishes to foster data sharing whenever possible. If you have data sets or software you would like to share with other members of the research community, PO.DAAC will be happy to manage and distribute these products for you. Contact PO.DAAC at the address above.

II. SUMMARY OF PO.DAAC DATA

The following two tables provide a listing of the data within PO.DAAC. Software available from PO.DAAC is listed in Section IV.

Table 1 provides a listing of the data within PO.DAAC, together with the geophysical parameter(s) available from the data. Section III provides further details for each data set.

Table 2 provides information on the media and format of the standard products. It should be emphasized that should you require data in a media or format that has not been indicated for a given product, in most cases your request can be custom-produced as time permits. This is particularly true for data that is available via FTP or as a CD-ROM. Please check Section III for further details on the data set of interest.

Table 1. PO.DAAC Data Sets and Geophysical Parameters.

GEOPHYSICAL PARAMETERS		Sea-Surface Height	Surface-Wind Vector (and Sigma-Naught)	Surface-Wind Speed	Surface-Wind Stress Vector	Integrated Water Vapor	Atmospheric Liquid Water	Sea-Surface Temperature	Sea-Ice Extent and Concentration	Heat Flux	In-Situ Data	Phytoplankton Pigment Concentration
PO.DAAC DATA SETS												
1	An Atlas Of Monthly Mean Distributions of GEOSAT Sea-Surface Height, SSM/I Surface-Wind Speed, and AVHRR/2 Sea-Surface Temperature During 1987, 1989, and 1990	X		X				X			X	
2	Atlas, R., Deallased Seasat SASS		X									
3	Atlas, R., Gridded, Averaged SSM/I Wind Observations (Atlas Level 3.5)		X								X	
4	Atlas, R., Heat Fluxes and Wind Stress Vectors From SSM/I Model Assimilation				X					X		
5	Atlas, R., Surface-Wind Vectors at SSM/I Locations (Atlas Level 2.5) and Gridded, Surface-Wind Analysis (Atlas Level 3.0)		X								X	
6	Carsey and Pihos Polar-Gridded Seasat SASS		X						X			
7	Chelton Monthly Seasat SASS		X		X							
8	Emery SSM/I Water-Vapor Corrections						X					
9	Emery TOVS Water-Vapor Corrections						X					
10	FNOC GEOSAT Corrections						X					
11	Geos-3 Altimeter; Geophysical Data Record	X		X								
12	Glazman GEOSAT Altimeter—NBDC Buoy Collocated Data	X	X	X							X	
13	JPL-UCLA-AES Deallased Seasat SASS		X									
14	Liu Monthly Surface Thermal Forcing Data for the Tropical Pacific									X		
15	Miami AVHRR Monthly Multichannel Sea-Surface Temperature and CZCS Phytoplankton Pigment Concentration Data							X				X
16	Miami AVHRR Weekly Multichannel Sea-Surface Temperature Data							X				
17	Seasat Altimeter; Geophysical Data Record, Level 2	X		X								
18	Seasat Altimeter; Sensor Data Record, Level 1a	X		X								
19	Seasat Altimeter; Sensor Data Record, Level 1b	X		X								

Table 1. PO.DAAC Data Sets and Geophysical Parameters (continued).

GEOPHYSICAL PARAMETERS		Sea-Surface Height	Surface-Wind Vector (and Sigma-Naught)	Surface-Wind Speed	Surface-Wind Stress Vector	Integrated Water Vapor	Atmospheric Liquid Water	Sea-Surface Temperature	Sea-Ice Extent and Concentration	Heat Flux	In-Situ Data	Phytoplankton Pigment Concentration
PO.DAAC DATA SETS												
20	Seasat SMMR Geophysical Data Record, Level 2			X		X	X	X				
21	Seasat SMMR Geophysical Data Record, Level 1b			X		X	X	X				
22	Seasat SMMR Sensor Data Record, Level 1a			X		X	X	X				
23	Seasat VIRR Sensor Data Record							X				
24	Seasat SASS Sensor Data Record, Level 1a		X					X				
25	Seasat SASS Geophysical Data Record, Level 1b		X									
26	Seasat SASS Geophysical Data Record, Level 2		X									
27	TOPEX/Poseidon Altimeter; Merged Geophysical Data Record	X		X								
28	Wentz, Atlas, and Freilich Deallised Seasat SASS		X									
29	Wentz Nimbus-7 SMMR Ocean Products			X		X	X					
30	Wentz Seasat SASS Sigma-Naught		X									
31	Wentz SSM/I Collocated Along the Geosat Track			X		X	X					
32	Wentz SSM/I Geophysical Tapes			X		X	X					

Table 2. Standard Media and Formats for PO.DAAC Data.
(Data are available on other media and in other formats on an "as time permits" basis.)

PO.DAAC DATA SETS			MEDIA AND FORMATS	FTP	CD-ROM	Tapes		Tape Formats		
						9-Track Tape (6250 bpi) or 3480 Tape	8-mm Tape	VAX VMS Backup	UNIX- Compatible Unlabeled	ANSI
1	An Atlas Of Monthly Mean Distributions of GEOSAT Sea-Surface Height, SSM/I Surface-Wind Speed, and AVHRR/2 Sea-Surface Temperature During 1987, 1989, and 1990			X		X		X	X	X
2	Atlas, R., Deallased Seasat SASS					X			X	
3	Atlas, R., Gridded, Averaged SSM/I Wind Observations (Atlas Level 3.5)			X		X			X	
4	Atlas, R., Heat Fluxes and Wind Stress Vectors From SSM/I Model Assimilation			X						
5	Atlas, R., Surface-Wind Vectors at SSM/I Locations (Atlas Level 2.5) and Gridded, Surface-Wind Analysis (Atlas Level 3.0)			X		X		X	X	X
6	Carsey and Phos Polar-Gridded Seasat SASS					X			X	
7	Chelton Monthly Seasat SASS					X			X	
8	Emery SSM/I Water-Vapor Corrections			X		X			X	
9	Emery TOVS Water-Vapor Corrections			X		X			X	
10	FNOC GEOSAT Corrections			X		X			X	
11	Geos-3 Altimeter; Geophysical Data Record					X			X	
12	Glazman GEOSAT Altimeter—NBDC Buoy Collocated Data			X		X		X	X	X
13	JPL-UCLA—AES Deallased Seasat SASS					X			X	
14	Liu Monthly Surface Thermal Forcing Data for the Tropical Pacific			X		X			X	
15	Miami AVHRR Monthly Multichannel Sea-Surface Temperature and CZCS Phytoplankton Pigment Concentration Data				X					
16	Miami AVHRR Weekly Multichannel Sea-Surface Temperature Data			X		X			X	
17	Seasat Altimeter; Geophysical Data Record, Level 2					X			X	
18	Seasat Altimeter; Sensor Data Record, Level 1a					X			X	
19	Seasat Altimeter; Sensor Data Record, Level 1b					X			X	
20	Seasat SMMR Geophysical Data Record, Level 2					X			X	
21	Seasat SMMR Geophysical Data Record, Level 1b					X			X	
22	Seasat SMMR Sensor Data Record, Level 1a					X			X	
23	Seasat VIRR Sensor Data Record					X			X	
24	Seasat SASS Sensor Data Record, Level 1a					X			X	
25	Seasat SASS Geophysical Data Record, Level 1b					X			X	
26	Seasat SASS Geophysical Data Record, Level 2					X			X	
27	TOPEX/Poseidon Altimeter; Merged Geophysical Data Record				X					
28	Wentz, Atlas, and Freilich Deallased Seasat SASS					X			X	
29	Wentz Nimbus-7 SMMR Ocean Products			X		X			X	
30	Wentz Seasat SASS Sigma-Naught					X			X	
31	Wentz SSM/I Collocated Along the Geosat Track			X		X			X	
32	Wentz SSM/I Geophysical Tapes			X		X			X	

III. DESCRIPTIONS OF PO.DAAC DATA

This section contains descriptions of the PO.DAAC data arranged alphabetically. Summaries of this information are provided in Tables 1 and 2.

1. An Atlas of Monthly Mean Distributions of GEOSAT Sea-Surface Height, SSM/I Surface-Wind Speed, and AVHRR/2 Sea-Surface Temperature During 1987, 1989, and 1990

Source/sensor: Geosat, SSM/I, AVHRR/2
Coverage: 1987, 1989, 1990, global
Data type: Monthly mean, 1/3 degree by 1/3 degree, gridded GEOSAT sea-surface height (1987 only), SSM/I surface-wind speed, AVHRR/2 sea-surface temperature, ARGOS buoy drift (1989 and 1990 only)
Archive volume: One magnetic tape
Distribution media: FTP from public account or, by special request, available on tape in VAX VMS backup, UNIX-compatible unlabeled, or ANSI format
Smallest granule: One magnetic tape
Reference: The following are available from Dr. D. Halpern, Jet Propulsion Laboratory, Pasadena, California (FAX) 818-393-6720:
(a) Halpern, D., et al., "An Atlas of Monthly Mean Distributions of Geosat Sea-Surface Height, SSM/I Surface-Wind Speed, AVHRR/2 Sea-Surface Temperature, and ECMWF Surface-Wind Components During 1987," JPL Publication 92-3, January 1992, 111 pp.
(b) Halpern, D., et al., "An Atlas of Monthly Mean Distributions of SSM/I Surface-Wind Speed, ARGOS Buoy Drift, AVHRR/2 Sea-Surface Temperature, and ECMWF Surface-Wind Components During 1989," JPL Publication 92-17, July 1992, 112 pp.
(c) Halpern, D., et al., "An Atlas of Monthly Mean Distributions of SSM/I Surface-Wind Speed, ARGOS Buoy Drift, AVHRR/2 Sea-Surface Temperature, and ECMWF Surface-Wind Components During 1990," JPL Publication 93-1, January 1993, 111 pp.

2. Atlas, R., Dealiased Seasat-A Satellite Scatterometer

Source/sensor: Seasat SASS
Coverage: 7 July 1978-10 October 1978, global
Data type: Atlas, et al. dealiased, gridded, 100-km-by-100-km, surface-wind vectors (SASS 1 algorithm with atmospheric general circulation model)
Archive volume: 635 Mbytes (6250-bpi magnetic tape)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (four tapes EBCDIC or two tapes binary)
Reference: Atlas, R., A. J. Busalacchi, M. Ghil, E. Kalnay, and S. Bloom, "Global surface wind and flux fields from model assimilation of Seasat data," *Journal of Geophysical Research*, 92, 1987, pp. 6477-6487.

3. Atlas, R., Gridded, Averaged Special-Sensor Microwave Imager (SSM/I) Wind Observations (Atlas Level 3.5)

Source/sensor: Defence Meteorological Program (DMSP) SSM/I, ship, and buoy reports
Coverage: July 1987–June 1989, global
Data type: Atlas gridded, 2-degree-latitude-by-2.5-degree-longitude, 5-day and monthly averaged, and surface-wind vectors (see item 4)
Archive volume: Two magnetic tapes (ASCII)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (two tapes)
References: (a) Atlas, R., and S. C. Bloom, "Global surface-wind vectors resulting from the assimilation of satellite wind-speed data in atmospheric general circulation models," *OCEANS '89 Proceedings*, IEEE Publication Number 89CH2780-5, 1989, pp. 260–265.
(b) Atlas, R., S. C. Bloom, R. N. Hoffman, J. V. Ardizzone, and G. Brin, "Space-based surface-wind vectors to aid understanding of air-sea interactions," *Eos Transactions*, American Geophysical Union, 72, 1991, p. 18.

4. Atlas, R., Heat Fluxes and Wind Stress Vectors From SSM/I Model Assimilation

Source/sensor: DMSP SSM/I, ECMWF model
Coverage: July 1987–June 1988, global
Data type: Global heat flux monthly averaged on 2-degree-latitude by 2.5-degree-longitude grid, wind stress
Archive volume: One magnetic tape
Distribution media: FTP from public account or, by special request, available on tape in VAX VMS backup, UNIX-compatible unlabeled, or ANSI format
Smallest granule: One file
Reference: None available at time of printing.

5. Atlas, R., Surface-Wind Vectors at Special-Sensor Microwave Imager (SSM/I) Locations (Atlas Level 2.5) and Gridded, Surface-Wind Analysis (Atlas Level 3.0)

Source/sensor: Defense Meteorological Satellite Program (DMSP) SSM/I
Coverage: June 1987–July 1989, global
Data type: Six-hourly, surface-wind vectors (directions assigned) at SSM/I data locations and Atlas gridded, 2-degree-latitude-by-2.5-degree longitude, surface-wind analysis combining SSM/I wind, ship, and buoy reports and model first-guess winds
Archive volume: 1 Gbyte
Distribution media: FTP from public account or, by special request, available on tape in VAX VMS backup, UNIX-compatible unlabeled, or ANSI format
Smallest granule: Entire data set
References: (a) Atlas, R., and S. C. Bloom, "Global surface-wind vectors resulting from the assimilation of satellite wind-speed data in atmospheric general circulation models," *OCEANS '89 Proceedings*, IEEE Publication Number 89CH2780-5, 1989, pp. 260–265.
(b) Atlas, R., S. C. Bloom, R. N. Hoffman, J. V. Ardizzone, and G. Brin, "Space-based surface-wind vectors to aid understanding of air-sea interactions," *Eos Transactions*, American Geophysical Union, 72, 1991, p. 18.

6. Carsey and Pihos Polar-Gridded Seasat-A Satellite Scatterometer

Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, north and south polar grids
Data type: Carsey and Pihos gridded, 100-km-by-100-km, polar, daily, unattenuated, sigma-naught statistics (mean, standard deviation, minimum, maximum)
Archive volume: 149 Mbytes (6250-bpi magnetic tape)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (one tape)
Reference: Carsey, F., and G. Pihos, "SASS Polar Gridded Data," JPL D-8196 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1983.

7. Chelton Monthly Seasat-A Satellite Scatterometer

Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Data type: Chelton, et al. gridded, 2.5-degree-latitude-by-2.5-degree-longitude, monthly, surface-wind vector (from Atlas, et al. dealiased, surface-wind vectors)
Archive volume: 0.5 Mbytes (6250-bpi magnetic tape)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One month, global (one tape)
Reference: Chelton, D. B., A. M. Mestas-Nunez, and M. H. Freilich, "Global wind stress and Sverdrup circulation from the Seasat Scatterometer," *Journal of Physical Oceanography*, 20, 1990, pp. 1175–1205.

8. Emery Special-Sensor Microwave Imager Water-Vapor Corrections

Source/sensor: DMSP SSM/I
Coverage: 15 July 1987–16 August 1987, global
Data type: Emery, et al. gridded, 1-degree-latitude-by-1-degree-longitude, weekly, vertically integrated water-vapor corrections for Geosat altimetry
Archive volume: 4 Mbytes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (one tape)
Reference: Emery, W., G. Born, D. Baldwin, and C. Norris, "Satellite derived water-vapor corrections for Geosat altimetry," *Journal of Geophysical Research, Special Geosat Issue, Part 1*, 95, 1990, pp. 2953–2965.

9. Emery Tiros Operational Vertical Sounder (TOVS) Water-Vapor Corrections

Source/sensor: National Oceanic and Atmospheric Administration (NOAA) TOVS
Coverage: 1 January 1987–16 August 1987, global
Data type: Emery, et al. gridded, 1-degree-latitude-by-1-degree-longitude, weekly, vertically integrated water-vapor corrections for Geosat altimetry
Archive volume: 4 Mbytes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (One tape)
Reference: Emery, W., G. Born, D. Baldwin, and C. Norris, "Satellite derived water-vapor corrections for Geosat altimetry," *Journal of Geophysical Research, Special Geosat Issue, Part 1*, 95, 1990, pp. 2953–2965.

10. Fleet Numerical Oceanographic Center (FNOC) GEOSAT Corrections

Source/sensor: Model output
Coverage: 8 November 1986–28 December 1988, global
Data type: Wet and dry tropospheric corrections as applied to the Zlotnicki–Fu Geosat altimeter data (see Sea-Surface Height, page 5, item 2)
Archive volume: 284 Mbytes (6250 bpi magnetic tapes)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (two tapes)
Reference: Cheney, R. E., B. C. Douglas, R. W. Agreen, L. Miller, D. L. Porter, and N. S. Doyle, "Geosat Altimeter Geophysical Data Record Handbook," NOAA Technical Memorandum NOS NGS 46, NOAA, Rockville, MD, 1987, 29 pp.

11. Geos-3 Altimeter; Geophysical Data Record

Source/sensor: Geos-3 altimeter
Coverage: 14 April 1975–1 December 1978, global
Data type: Altimetric sea-surface heights, sea state, wind speed, Swiderski ocean-tide height, and Cartwright solid-tide height
Archive volume: 170 Mbytes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: Agreen, R. W., "The 3.5-Year Geos-3 Data Set," NOAA Technical Memorandum NOS NGS 33, NOAA, Rockville, MD, 1982, 8 pp.

12. Glazman GEOSAT Altimeter—NBDC Buoy Collocated Data

Source/sensor: National Data Buoy Center (NBDC), Geosat Altimeter
Coverage: 1986–1988, global
Data type: NBDC buoy wave spectra, wind speed, sea and air temperatures, and atmospheric pressure. Geosat altimeter radar cross section, wind speed, and significant wave height. Collocation within 1 hour and a 1-degree-square area around buoy.
Archive volume: One tape
Distribution media: FTP from public account or, by special request, available on tape in VAX VMS backup, UNIX-compatible unlabeled, or ANSI format
Smallest granule: One magnetic tape
Reference: (a) Glazman, R. E., "Statistical Problems of Wind-Generated Gravity Waves Arising in Microwave Remote Sensing of Surface Winds," *IEEE Transactions of Geoscience and Remote Sensing*, 29, 1, 1991, pp. 135–142.
(b) Glazman, R. E., and S. H. Pilorz, "Effects of Sea Maturity on Satellite Altimeter Measurements," *Journal of Geophysical Research*, 95, C3, 1990, pp. 2857–2870.

13. JPL–University of California at Los Angeles (UCLA)–Atmospheric Environment Science (AES), Ontario, Canada, Dealiased Seasat-A Satellite Scatterometer

Source/sensor: Seasat SASS
Coverage: 6 September 1978–20 September 1978, global
Data type: JPL–UCLA–AES dealiasd, gridded, 1-degree-latitude-by-1-degree-longitude, 6-hourly, surface-wind vectors (SASS 1 algorithm)
Archive volume: 54 Mbytes (6250-bpi magnetic tape)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (one tape)
Reference: Wurtele, M. G., P. M. Woiceshyn, S. Pete'herych, M. Borowski, and W. S. Appleby, "Wind direction alias removal studies of Seasat scatterometer derived wind fields," *Journal of Geophysical Research*, 87, 1982, pp. 3365–3377.

14. Liu Monthly Surface Thermal Forcing Data for the Tropical Pacific

Source/sensor: Nimbus-7 SMMR, GOES-W VISSR
Coverage: January 1980–September 1983, Tropical Pacific (20°S–20°N)
Data type: Fields of surface latent heat flux, surface solar irradiance, net heat flux, monthly averaged, spatial resolution of 2 degrees by 2 degrees
Archive volume: One magnetic tape
Distribution media: FTP from public account or, by special request, available on tape in VAX VMS backup, UNIX-compatible unlabeled, or ANSI format
Smallest granule: Entire data set
Reference: (a) Liu, W. T., "Moisture and Latent Heat Flux Variabilities in the Tropical Pacific Derived From Satellite Data," *Journal of Geophysical Research*, 93, C6, 1988, pp. 6749–6760.
(b) Liu, W. T., "1982–1983 El Nino Atlas, Nimbus-7 Microwave Radiometer Data," JPL Publication 87-5, Jet Propulsion Laboratory, Pasadena, California, 1987.
(c) Liu, W. T., and C. Gauthier, "Thermal Forcing on the Tropical Pacific From Satellite Data," *Journal of Geophysical Research*, 95, C8, 1990, pp. 13209–13217.

15. Miami AVHRR Monthly Multichannel Sea-Surface Temperature (MCSST) and CZCS Phytoplankton Pigment Concentration Data

Source/sensor: Nimbus-7 CZCS, NOAA AVHRR
 Coverage: 1978–1986 for Nimbus-7 CZCS, 1981–1986 for NOAA AVHRR, both regional and global
 Data type: Monthly averaged phytoplankton pigment concentration, monthly averaged daytime and nighttime sea-surface temperature, global and regional. Temporal and spatial coregistration for 1981–1986.
 Archive volume: CD-ROM, 8-mm magnetic tape, TAR format
 Distribution media: Set of five CD-ROMs, HDF format. By special request, this data can be made available on tape in VAX VMS backup, UNIX-compatible unlabeled, or ANSI format.
 Smallest granule: Complete set of five CD-ROMs
 Reference: Tran, A. T., E. Smith, J. Hyon, R. Evans, O. Brown, and G. Feldman, "Satellite-Derived Multichannel Sea-Surface Temperature and Phytoplankton Pigment Concentration Data: A CD-ROM Set Containing Monthly Mean Distributions for the Global Oceans," JPL D-1035-1 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1992.
 Comment: A second set of CD-ROMs will be issued in late 1993 that will contain monthly MCSST data for 1987–1992.

16. Miami AVHRR Weekly Multichannel Sea-Surface Temperature (MCSST)

Source/sensor: Tiros-N/NOAA Advanced Very-High-Resolution Radiometer (AVHRR)
 Coverage: October 1981–December 1992, global and regional
 Data type: University of Miami/Rosenstiel School of Marine and Atmospheric Sciences (RSMAS), weekly, 18-km-by-18-km gridded, interpolated MCSST, daytime and nighttime retrievals for the globe and for the following regions: Atlantic, South Atlantic, Northeast Pacific, Northwest Pacific, Southeast Pacific, Southwest Pacific, Indian Oceans, and Agulhas.
 Archive volume: Optical disks equivalent to more than 43 8-mm tapes (daytime, global), 43 tapes (nighttime, global), 8 tapes per region
 Distribution media: Nine-track magnetic tape, 3480 tape, 8-mm tape in VAX, UNIX-compatible unlabeled, or ANSI format.
 Daytime and nighttime DSP formats are available in TAR format. The data are also in HDF format. By May 1993, HDF format will be available in TAR UNIX format. One 4-mm tape contains 12 years of either day or night global data.
 Smallest granule: Global or regions as listed above
 References: (a) McClain, E. P., W. G. Pichel, and C. C. Walton, "Comparative performance of AVHRR-based multichannel sea-surface temperatures," *Journal of Geophysical Research*, 90, 1985, pp. 11587–11601.
 (b) Olson, D. B., G. P. Podesta, R. H. Evans, and O. B. Brown, "Temporal variation in the separation of Brazil and Malvinas Currents," *Deep-Sea Research*, 35, 1988, pp. 1971–1990.
 (c) NASA Ocean Data System, "A User's Guide to the NOAA AVHRR MCSST Data Set Produced by The University of Miami/RSMAS," University of Miami, Coral Gables, Florida, 1990.

17. Seasat Altimeter; Sensor Data Record, Level 1a

Source/sensor: Seasat altimeter
Coverage: 7 July 1978–10 October 1978, global
Data type: Raw altimeter height stored as round-trip travel time, significant wave height, automatic gain control, and backscatter coefficient. Equivalent to EOS level-1a processing.
Archive volume: 169 tapes (6250 bpi)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape = one day
Reference: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.

18. Seasat Altimeter; Sensor Data Record, Level 1b

Source/sensor: Seasat altimeter
Coverage: 7 July 1978–10 October 1978, global
Data type: Satellite height, sensor data with location and atmospheric algorithm output. Equivalent to EOS level-1b processing.
Archive volume: 29 tapes (6250 bpi)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.

19. Seasat Altimeter; Geophysical Data Record, Level 2

Source/sensor: Seasat altimeter
Coverage: 7 July 1978–10 October 1978, global
Data type: Precise height with respect to reference ellipsoid, significant wave height, automatic gain control, backscatter coefficient, quality flags, with output from suite of location, atmospheric, and oceanic geophysical algorithms. Equivalent to EOS level-2 processing.
Archive volume: 350 Mbytes = 14 tapes (6250 bpi)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
References: (a) "JPL Seasat Project, Geophysical Data Record (GDR) User's Handbook: Altimeter," JPL 622-97, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1980.
(b) JPL Seasat Project, "Altimeter Geophysical Algorithm Specifications," JPL 622-226 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1980.

20. Seasat-A Satellite Scatterometer (SASS) Sensor Data Record, Level 1a

Source/Sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Data type: Decommuted, Earth-located engineering parameters. Equivalent to EOS level-1a processing.
Archive volume: 96 tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.

21. Seasat-A Satellite Scatterometer Geophysical Data Record, Level 1b

Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Data type: Sensor files only, attenuated sigma-naught with land-ocean flags. Equivalent to EOS level-1b processing.
Archive volume: 378 tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: Boggs, D. H., "Geophysical Data Record (GDR) User's Handbook: Scatterometer," JPL D-129, Seasat Document 622-232 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.

22. Seasat-A Satellite Scatterometer Geophysical Data Record, Level 2

Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Data type: Sensor and geophysical files, sigma-naught, and wind data. Product of processing by suite of geophysical algorithms. Equivalent to EOS level-2 processing.
Archive volume: 48 tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: Boggs, D. H., "Geophysical Data Record (GDR) User's Handbook: Scatterometer," JPL D-129, Seasat Document 622-232 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.

23. Seasat Scanning, Multichannel Microwave Radiometer (SMMR) Geophysical Data Record, Level 1b

Source/sensor: Seasat SMMR
Coverage: 7 July 1978–10 October 1978, global
Data type: Algorithm-processed sensor data with some geophysical processing. Equivalent to EOS level-1b processing.
Archive volume: 381 magnetic tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: JPL Seasat Project, "Geophysical Data Record (GDR) User's Handbook: SMMR," JPL 622-205, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.

24. Seasat Scanning, Multichannel Microwave Radiometer (SMMR) Geophysical Data Record, Level 2

Source/sensor: Seasat SMMR
Coverage: 7 July 1978–10 October 1978, global
Data type: Sea-Surface temperature, sea-surface wind speed, integrated water vapor, integrated liquid water, and rain rate. Product of processing by suite of geophysical algorithms. Equivalent to EOS level-2 processing.
Archive volume: 24 magnetic tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: JPL Seasat Project, "Geophysical Data Record (GDR) User's Handbook: SMMR," JPL D-110, Seasat Document 622-205, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.

25. Seasat Scanning, Multichannel Microwave Radiometer (SMMR) Sensor Data Record, Level 1a

Source/sensor: Seasat SMMR
Coverage: 7 July 1978–10 October 1978, global
Data type: All radiometric and engineering data; satellite and footprint location data. Equivalent to EOS level-1a processing.
Volume/media: 99 magnetic tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.

26. Seasat Visible and Infrared Radiometer (VIRR) Sensor Data Record

Source/sensor: Seasat VIRR
Coverage: 7 July 1978–10 October 1978, global
Data type: Infrared radiances
Archive volume: 96 tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: One tape
Reference: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.

27. TOPEX/POSEIDON Altimeter; Merged Geophysical Data Record

Source/sensor: NASA TOPEX altimeter and CNES Poseidon solid-state altimeter
Coverage: September 1992–ongoing, global
Data type: Precise altimeter range and satellite position, significant wave height, automatic gain control or backscatter coefficient, ionospheric, atmospheric and oceanic correction, quality flags
Archive volume: Optical disk, 200+Mbyte per 10-day repeat cycle
Distribution media: CD-ROMs, ISO 9660
Smallest granule: One CD-ROM = two 10-day cycles
Reference: PO.DAAC Merged TOPEX/Poseidon GDR CD-ROM Users Handbook (to be released in May 1993)
Comment: (a) This data set is expected to be available late May 1993.
(b) The TOPEX Altimeter GDR is available as a separate data set upon request. The TOPEX Altimeter sensor data record (SDR) and TOPEX Microwave Radiometer (TMR) SDR are also available upon request.

28. Wentz, Atlas, and Freilich Dealiased Seasat-A Satellite Scatterometer

Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Data type: Wentz, Atlas, and Freilich dealiasd, 100-km-by-100-km, surface-wind vectors (SASS 2 algorithm)
Archive volume: 258 Mbytes (6250-bpi magnetic tape)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (two tapes)
Reference: Wentz, F., "User's Manual: Seasat Scatterometer Wind Vectors," Remote Sensing Systems Technical Report 081586, Remote Sensing Systems, 1101 College Avenue, Santa Rosa, CA 95404, 1986, 21 pp.

29. Wentz Nimbus-7 SMMR Ocean Products

Source/sensor: Nimbus-7 SMMR
Coverage: November 1979–September 1984, global
Data type: Oceanic wind speed, columnar water vapor, columnar liquid water, nighttime only, 60-km-square samples
Archive volume: Four magnetic tapes
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, and 8-mm tape available in VAX backup, UNIX, or unlabeled format
Smallest granule: One magnetic tape = two years
Reference: Wentz, F. J., and E. A. Francis, "Nimbus-7 SMMR Ocean Products, 1979–1984," Remote Sensing Systems Technical Report 033192, Remote Sensing Systems, 1101 College Avenue, Suite 220, Santa Rosa, CA 95404, 1992, 36 pp.

30. Wentz Seasat-A Satellite Scatterometer Sigma-Naught

Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Data type: Wentz forward and aft sigma-naught data collocated into 50-km-by-50-km cells
Archive volume: 1767 Mbytes = 16 tapes (6250 bpi)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Six days (one tape)
Reference: Wentz, F. J., "Documentation for Program Order: Collocating SASS Sensor Data in 50-km Bins," Remote Sensing Systems Technical Report 113082, Remote Sensing Systems, 1101 College Avenue, Santa Rosa, CA 95404, 1982, 23 pp.

31. Wentz Special-Sensor Microwave Imager Collocated Along the GEOSAT Track

Source/sensor: DMSP SSM/I, Geosat altimeter
Coverage: July 1987–December 1989, global
Data type: SSM/I wind speed, water vapor, and cloud water interpolated to the Geosat location
Archive volume: 150 Mbytes = one tape (6250 bpi magnetic tape)
Distribution media: Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule: Entire data set (one tape)
Reference: Wentz, F. J., "User's Manual: Collocated Geosat-SSM/I Tape, 1987–1989," Remote Sensing Systems Technical Report 100190, Remote Sensing Systems, 1101 College Avenue, Suite 220, Santa Rosa, CA 95404, 1990, 3 pp.

32. Wentz Special-Sensor Microwave Imager Geophysical Tapes

Source/sensor:	DMSP SSM/I
Coverage:	July 1987–December 1991, global
Data type:	Wentz geophysical tapes, daily, 25-km-by-25-km cells of wind speed, integrated liquid water, atmospheric water vapor
Archive volume:	107 tapes (6250 bpi magnetic tapes)
Distribution media:	Nine-track magnetic tape, (6250-bpi) 3480 tape, 8-mm tape, unlabeled format
Smallest granule:	Two weeks, global (one tape)
Reference:	Wentz, F. J., "User's Manual: SSM/I Geophysical Tapes," Remote Sensing Systems Technical Report 060989, Remote Sensing Systems, 1101 College Avenue, Suite 220, Santa Rosa, CA 95404, 1989, 16 pp.

IV. SOFTWARE APPLICATIONS

IMAGIC

IMAGIC is an image-processing software package for the Apple Macintosh II, written by Brian Powell, Charles Norris, and William Emery, Colorado Center for Astrodynamics Research, Campus Box 431, University of Colorado, Boulder, Colorado 80309.

IMAGIC is useful for working with any data that can be viewed as a two-dimensional image. Though written primarily to process satellite-derived imagery, IMAGIC can also be used for visualizing numerical data and for processing medical images.

The current version of IMAGIC being distributed by the JPL PO.DAAC is 0.9d65.0.1.

IMAGIC operates on any Apple Macintosh computer with a color monitor, including the Macintosh II, Macintosh IIfx, Macintosh IIfx, and Macintosh IIfx. The program requires your Macintosh have System 6.0 or later. Two megabytes of RAM and a hard disk are also recommended.

ATLAST

ATLAST is a world ocean atlas of hydrography, nutrients, and chemical tracers.

This electronic atlas, developed by Professor Peter Rhines (School of Oceanography, University of Washington, Seattle, Washington), allows the scientist to examine and plot hydrographic and tracer section data on an IBM PC or compatible computer. Approximately 100 hydrographic sections are provided with the ATLANT package, which is distributed by PO.DAAC on five 3.5-inch, high-density diskettes with a "User's Guide." New sections may be imported into the ATLANT format by means of a utility provided with the package.

The current version of ATLANT being distributed by the JPL PO.DAAC is 3.5.

ATLAST requires an IBM-class microcomputer with CGA, EGA, or VGA graphics capabilities. An 80386-based IBM clone is ideal, and an IBM-AT class machine is adequate.

OCEANATLAS

OceanAtlas is a microcomputer application that provides a graphic environment to examine and plot oceanographic section data. OceanAtlas 2.0 is an enhanced version of the original release, developed by John Osborne (NOAA/Pacific Marine Environmental Laboratory [PMEL], Seattle, Washington), Peter Rhines (University of Washington, Seattle, Washington), and James Swift (Scripps Institution of Oceanography, La Jolla, California). The program is a companion to the IBM-PC program ATLANT.

OceanAtlas provides plotting capabilities with features such as data filtering and importing from spreadsheets. It also provides the capability to perform calculations such as geostrophic velocities.

The OceanAtlas package is distributed on three 3.5-inch, high-density diskettes with a "User's Guide" that includes approximately 50 hydrographic sections. New sections may be imported into the OceanAtlas format by means of a utility provided with the package.

OceanAtlas requires a Macintosh computer with a 68020 or 68030 microprocessor. It is optimized for System 7.x, but should run on System 6.0x. Although OceanAtlas will run in black and white, its full features are usable only with color monitors capable of displaying 256 colors. An SE30 with an auxiliary color monitor can be used, as can any of the Macintosh II family.

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16. Abstract The Physical Oceanography Distributed Active Archive Center (PO.DAAC) archive at the Jet Propulsion Laboratory (JPL) includes satellite data sets for the ocean sciences and global-change research to facilitate multidisciplinary use of satellite ocean data. Parameters include sea-surface height, surface-wind vector, sea-surface temperature, atmospheric liquid water, and integrated water vapor. The JPL PO.DAAC is an element of the Earth Observing System Data and Information System (EOSDIS) and is the United States distribution site for Ocean Topography Experiment (TOPEX)/POSEIDON data and metadata.					
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